Using Patient Evidence To Guide Clinical Care: Consulting The Other Expert In The Room

By: **Jennifer S. Howard, PhD, ATC**, Aaron Sciascia, PhD, ATC, PES, and Johanna M. Hoch, PhD, ATC

Abstract

The evidence-based practice movement in health care has gained both momentum and scrutiny since its inception. Previous IJATT editorials have highlighted the dynamic interplay among evidence sources including the clinician's internal evidence, best available external evidence, and patient evidence.1,2 In general, health care professions have applauded the integration of these three sources for making clinical decisions, as it incorporates science/knowledge (external evidence), expertise/experience (internal evidence), and the values/preferences/experiences of the individual patient (patient evidence).1,2 However, it seems that athletic training has focused predominantly on the utilization of the best available external evidence as the largest contributor to evidence-based practice (EBP); thus, our EBP education has primarily focused on the development of PICO questions (Patient or Population of interest, Intervention, Control or Comparison, Outcome of interest), searching and critically appraising external evidence. In our quest to become evidence-based practitioners, we have not given enough appreciation to the third source—patient evidence2 (e.g., the patient's values, preferences, experiences, etc.). The integration of the patient in to decision-making in traditional athletic training settings is obscured by a lack of (a) clear clinical standards for achieving patient engagement and (b) the documentation and quantification of the patient's perspective. These challenges, combined with the nuances of patient individuality, have made a complex topic much more challenging.

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Using Patient Evidence to Guide Clinical Care: Consulting the Other Expert in the Room

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The evidence-based practice movement in health care has gained both momentum and scrutiny since its inception. Previous *IJATT* editorials have highlighted the dynamic interplay among evidence sources including the clinician's internal evidence, best available external evidence, and patient evidence.[1,2] In general, health care professions have applauded the integration of these three sources for making clinical decisions, as it incorporates science/knowledge (external evidence), expertise/experience (internal evidence), and the values/preferences/experiences of the individual patient (patient evidence).[1,2] However, it seems that athletic training has focused predominantly on the utilization of the best available external evidence as the largest contributor to evidence-based practice (EBP); thus, our EBP education has primarily focused on the development of PICO questions (Patient or Population of interest, Intervention, Control or Comparison, Outcome of interest), searching and critically appraising external evidence. In our quest to become evidence-based practitioners, we have not given enough appreciation to the third source—patient evidence[2] (e.g., the patient's values, preferences, experiences, etc.). The integration of the patient in to decision-making in traditional athletic training settings is obscured by a lack of (a) clear clinical standards for achieving patient engagement and (b) the documentation and quantification of the patient's perspective. These challenges, combined with the nuances of patient individuality, have made a complex topic much more challenging.

One critical component to patient-centered care is the use of patient-reported outcome measures (PROs). PROs (also known as patient-rated outcomes) are any report of a patient's health condition that comes directly from the patient.[3] PROs can come in many forms, including standardized questionnaires that may be general evaluations of health-related quality of life or which are disease-specific (osteoarthritis, chronic ankle instability), region-specific (ankle, shoulder, low back), or domain-specific (pain, fear of movement, self-efficacy). Patient-generated problem-specific PROs, which allow the patients to specify the activities or problems of greatest concern and evaluate their progress on these items, also exist. The different types of PROs and the questions contained within the instruments drive patient-centered care by primarily assessing activity limitations and participation restrictions. These domains of the International Classification of Functioning (ICF) model[4] are often challenging to assess. However, PROs are the outcome of choice to ensure clinicians capture all three domains of patient-specific function when developing goals and treatment plans. In further alignment with the ICF model, PROs also have the potential to offer insight regarding environmental and personal contextual factors that can be huge barriers or facilitators to patient care and must be taken in consideration to achieve true patient-centered care.

The addition of PROs to athletic training clinical practice is challenging, and it is hard to look to our peer professions to model best practices, as our peer professions have a very different clinical model. For example, in the fields of medicine, physical therapy, and occupational therapy patients are seen with less frequency and often during scheduled times. Less frequent visits allow time for changes to occur, which, in combination with requirements for reimbursement, is why the utilization of PROs in these clinical settings is routine. Furthermore, the acute injuries often seen in traditional athletic training settings are not always accompanied by the removal of the patient from activity in order to perform treatment. As such, it is difficult to know when PROs should be distributed, if at all. We do not bring these factors to the reader's attention to excuse the use of PROs in athletic training practice; rather, we suggest that replicating methods utilized in these other settings may not result in meaningful and useful information in athletic training's model of patient care. Therefore, we believe it is time we focus on a method of application that is specific to athletic training clinical practice, and one that can provide guidance to practicing clinicians, researchers, and educators to fully integrate the patient in the evidence-based practice model.

To do this, we have developed the Comprehensive Evaluation and Intervention Model (Figure 1) to describe the process of incorporating PROs in patient care. This type of evaluation should augment the traditional clinical exam, specific to athletic training clinical practice. This systematic process builds on the model for evaluating outcomes previously proposed by McKeon and McKeon,[5] and is designed to capitalize on the positive effects associated with purposeful and intentional implementation of PROs in practice.[6] This model begins with formal engagement of the patient in the evaluation by having the patient complete a PRO with little to no clinician input. The completed PRO is then reviewed by the clinician in conference with the patient. The clinician may wish to elicit elaboration regarding the selected responses with open-ended, nonleading questions, particularly when marked responses are not in agreement with clinical presentation. This discussion should assist in identifying barriers and facilitators to treatment and help to recognize the patient's priorities and goals. The findings from the comprehensive exam should then be incorporated into patient goals and intervention strategies by which to achieve those

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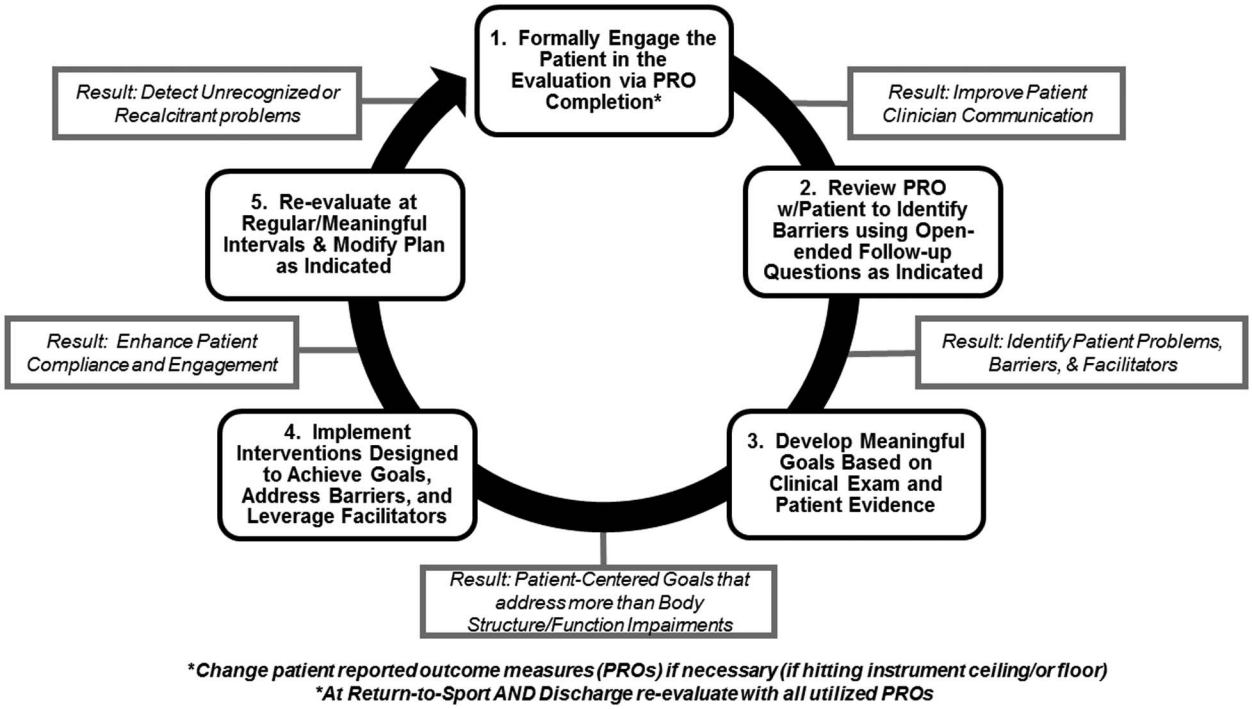

Figure 1 — The Comprehensive Evaluation and Intervention Model. The black boxes represent the systematic steps in the model and the gray boxes refer to the results of these steps. These steps are designed to be iterative and may require multiple repetitions throughout the rehabilitation process, working toward return to participation and eventual discharge from care.

goals. The engagement of the patient throughout this process will result in improved patient-clinician communication and should influence patient compliance. Additionally, this model demonstrates the need to incorporate PROs at regular and/or meaningful intervals in order to detect recalcitrant or previously unrecognized problems. Information gleaned from these evaluations can then be used to modify and adapt the treatment plan, keeping in mind the comprehensive evaluation and treatment plan is continually repeated until the time of discharge from care. An example application of this model and a patient case is provided below to elucidate the use of this model in practice.

Case Example

A 22-year-old starting baseball pitcher with a winning record has been diagnosed with a superior labral injury in his throwing arm. The following represent key findings from the clinical exam:

- Limited range of motion during overhead elevation (30° deficit compared to uninjured arm)
- Total range of motion deficit (internal plus external rotation) of >10° in the throwing arm compared to the nonthrowing arm
- Scapular dyskinesis
- Dynamic hip weakness during single-leg squatting and manual muscle testing of hip abduction graded 4/5

Step 1: Formally Engage the Patient in the Evaluation via PRO Completion

The patient described above completed the Kerlan-Jobe Orthopaedic Center Shoulder and Elbow Score (KJOC)[7] at initial evaluation in order for the clinician to determine the patient's perception of his functional status. (The KJOC is 10 questions, each scored 0 [low function] to 10 [high function], with a top score of 100.) After review of the PRO, the patient's primary complaints were an inability to accurately throw to a target (1 out of 10), decreased velocity (2 out of 10), and weakness with early arm fatigue (1 out of 10). However, the KJOC also revealed that the patient was not having much pain with arm activities (8 out of 10), but had a significant limitation with endurance (1 out of 10), and his injury had strained his relationship with his coach (2 out of 10). An examination of the total KJOC score suggested that the patient felt that his performance of sport-related activities was approximately 60 out of 100, which translates to a 40% loss of function.

Step 2: Review the PRO With the Patient and Identify Barriers Using Open-Ended Follow-Up Questions as Indicated

At this step, the clinician should spend time reviewing the results from the PRO as well as other items identified during the subjective portion of the clinical examination. This will be pertinent for developing the treatment plan because barriers for achieving an optimal outcome can be identified during the review. In the above case, the patient noted that his relationship with his coach had been strained due to the injury. He believed that an expedient return to the team would help mend the relationship with his coach. Although not formally assessed via PRO, the patient mentioned during follow-up questioning that he had difficulty performing some activities outside of baseball. For example, he mentioned that the response regarding fatigue was mostly related to weakness and fatigue he had noticed in his arm during his part-time job as a

server in a restaurant, especially when he carried a tray of dishes over his shoulder. Furthermore, he reported working 2–3 days per week in addition to being a full-time student. The altered relationship with the coach would be considered a barrier because it could hinder recovery, as the athlete may not be forthcoming regarding the resolution of pain and/or dysfunction during treatment in order to expedite his return to sport. Similarly, the athlete's work and school schedules could also be viewed as barriers as (a) he is participating in an activity outside of sport that could be exacerbating his symptoms and (b) he may not be able to consistently attend treatment sessions due to his limited availability. This information should be considered when developing the treatment plan.

Step 3: Develop Meaningful Goals Based on Clinical Exam and Patient Evidence

Traditionally, the goals for the case presented would primarily focus on resolution of the structural and functional impairments identified. These goals would likely include:

- Decrease pain to 1 out of 10 or less during active arm elevation within 3 weeks
- Increase arm elevation to within 5 degrees of the noninvolved arm within 4–6 weeks
- Reduce rotational total range of motion difference to less than 5 degrees within 6 weeks
- Increase hip abduction strength to 5/5 with manual muscle testing within 6 weeks

However, clinicians and patients do not view an outcome as successful based on improvement of impairments alone.[8] Therefore, additional goals should be developed based on the KJOC findings. These goals may include:

- Increase the overall KJOC score to approximately 90 out of 100 within 12–16 weeks
- Increase throwing velocity to previous level prior to injury within 12–16 weeks (goal of KJOC score 8 out of 10)
- Decrease fatigue in the involved arm during overhead actions such as throwing and carrying a dish tray within 12–16 weeks (goal of KJOC score 8 out of 10)
- Communicate progress with the patient's coach weekly, providing updated return-to-play time as data becomes available (goal of KJOC score 7 out of 10)

A number of key points should be made about the additional patient-oriented goals. First, the literature has shown that athletes with and without a history of injury may not achieve perfect scores on self-reported instruments, even when asymptomatic.[9–14] Therefore, goal setting does not have to aim for the best possible score, thus a score of 90/100 on the KJOC in this case would parallel the literature. Second, while clinicians strive to restore previous levels of performance in athletic patients during controlled rehabilitation settings, it is not uncommon for some deficiency in performance to remain after discharge from care has occurred.[15] In these instances, the athletic trainer should continue to follow and assess the patient until the deficiencies have been corrected. Finally, the timeframes included here are based on both internal and external evidence. We recommend that clinicians set goals that are ambitiously attainable, but are also in line with physiological considerations of tissue healing.

Step 4: Implement Intervention Designed to Achieve Goals, Address Barriers, and Leverage Facilitators

In order to integrate the resolution of the physical impairments identified through the physical examination with the resolution of the items identified through the PRO, the patient should be included in the development of all goals. This is recommended in order to establish proper expectations and to elucidate and account for contextual factors. These contextual factors, particularly how personal and environmental factors may interact, can be different from patient to patient. Therefore, consulting the patient on the feasibility of a plan is critical for enhancing adherence, compliance, and, ultimately, success. In the example case, communication between the coach and athlete, mediated by the athletic trainer using the patient evidence acquired from the PRO, could help ease the tension between them, which in turn may help positively influence their relationship and assist in the athlete's recovery. Also, the identified barriers associated with the athlete's school and work schedule could be overcome through strategic scheduling of face-to-face sessions and supplemental home exercise programs. His personal interest and engagement in resolving his symptoms and quickly returning to play may facilitate his compliance when coupled with a well-explained home exercise program.

Step 5: Re-evaluate at Regular/Meaningful Intervals and Modify Plan as Indicated

Clinicians should routinely administer the PROs during the treatment process. This can be challenging for athletic trainers who treat a large number of acute injuries that vary in severity. However, the utilization of PRO measures throughout the treatment process is a critical step in not only the art, but also the science of patient-centered care. When PROs are re-evaluated consistently throughout the rehabilitation process, the information gleaned from the self-reported instruments should guide clinicians to progress, modify, or eliminate exercises based on the achievement of established goals. Using the aforementioned case as an example, the patient was provided the KJOC again at the 2-month postrehabilitation evaluation. After review of the KJOC, the patient perceived that his arm felt stronger but still became tired quite easily. This would suggest the clinician should begin to adjust the load and volume of exercises to ensure that aspects of strength, endurance, and power are addressed in a more advanced way.

Unfortunately, there is no standardized timeframe for reassessment to recommend as PRO measurement properties, patient populations, specific pathologies, and facility infrastructures differ. A general guideline is to reassess a patient approximately every 1 to 2 weeks or when significant changes in participation restrictions are being considered. By periodically reassessing the patient, the clinician can help reduce the treatment plan from a "one-size-fits-all" intervention to a patient-centered, goal-oriented rehabilitation program. In addition, there are numerous instruments to choose from, all with strengths and weaknesses for a variety of patient populations. Fortunately, there are resources available that capture a large number of these instruments and provide information pertinent to clinician use, all in one place! Take the time to check out the following websites, www.sportsmedres.org and www.orthoscores.com, for instruments that may be applicable to your patient population.

The Board of Certification (BOC) is calling for an enhanced focus on the collection and use of data for making treatment decisions.[16] While there are many avenues to take to advance data-driven health care, the route that is best to travel is one well thought out prior to embarking. If we continue to only evaluate body structures and functions to determine their anatomical functionality in a controlled clinical environment, we fail to consider the tremendous influence that factors unique to the patient (experiences, beliefs, expectations, etc.), environment, and social context can have on the success or failure of the treatment plan. Athletic trainers are experts on musculoskeletal conditions, but the patient is the expert on him or herself; therefore, to succeed clinically, we must combine our internal and external evidence with the patient's evidence to construct (and continuously re-evaluate and modify) optimal care.

References

1. McKeon PO. Medina McKeon JM. Evidence-based practice or practice-based evidence: What's in a name? *Int J Athl Ther Train*. 2015;*20*(4):1–4. doi:10.1123/ijatt.2015-0055
2. Medina McKeon JM, McKeon PO. Patient evidence (aka, boy, patients complicate our clinical practice). *Int J Athl Ther Train*. 2017;*22*(6):1–4. doi:10.1123/ijatt.2017-0088
3. US Food and Drug Administration. Guidance for industry: patient-reported outcome measures: use in medical product development to support labeling claims. 2009. https://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM193282.pdf. Accessed December 18, 2017.
4. World Health Organization. Towards a common language for functioning, disability, and health; ICF the international classification of functioning, disability, and health. *World Health Organization*. 2002. http://www.who.int/classifications/icf/icfbeginnersguide.pdf.
5. McKeon PO, McKeon JM. Outcomes assessment: demonstrating our predictive ability as a healthcare profession. *Int J Athl Ther Train*. 2016;*21*(4):1–4. doi:10.1123/ijatt.2016-0062
6. Greenhalgh J, Long AF, Flynn R. The use of patient-reported outcome measures in routein clinical practice: Lack of impact or lack of theory? *Soc Sci Med*. 2005;*60*:833–843. PubMed doi:10.1016/j.socscimed.2004.06.022
7. Alberta FG, ElAttrache NS, Bissell S, et al. The development and validation of a functional assessment tool for the upper extremity in the overhead athlete. *Am J Sports Med*. 2010;*38*(5):903–911. PubMed doi:10.1177/0363546509355642
8. Zeppieri G, Lentz TA, Atchison JW, et al. Preliminary results of patient-defined success criteria for individuals with musculoskeletal pain in outpatient physical therapy settings. *Arch Phys Med Rehabil*. 2012;*93*:434–440. PubMed doi:10.1016/j.apmr.2011.10.007
9. Fedoriw WW, Ramkumar P, McCulloch PC, Lintner DM. Return to play after treatment of superior labral tears in professional baseball players. *Am J Sports Med*. 2014;*42*(5):1155–1160. PubMed doi:10.1177/0363546514528096
10. Wymore L, Fronek J. Shoulder functional performance status of national collegiate athletic association swimmers. *Am J Sports Med*. 2015;*43*(6):1513–1517. PubMed doi:10.1177/0363546515574058
11. Kraeutler MJ, Ciccotti MG, Dodson CC, Frederick RW, Cammarota B, Cohen SB. Kerlan-jobe orthopaedic clinic overhead athlete scores in asymptomatic professional baseball pitchers. *J Shoulder Elbow Surg*. 2012;*22*:329–332. PubMed doi:10.1016/j.jse.2012.02.010
12. Sciascia A, Haegele LE, Lucas J, Uhl TL. Preseason perceived physical capability and previous injury. *J Athl Train*. 2015;*50*(9):937–943. doi:10.4085/1062-6050-50.7.05
13. Cameron KL, Mountcastle SB, Nelson BJ, et al. History of shoulder instability and subsequent injury during four years of follow-up: A survival analysis. *J Bone Joint Surg Am*. 2013;*95*:439–445. doi:10.2106/JBJS.L.00252
14. Cameron KL, Thompson BS, Peck KY, Owens BD, Marshall SW, Svoboda SJ. Normative values for the koos and womac in a young athletic population: History of knee ligament injury is associated with lower scores. *Am J Sports Med*. 2013;*41*(3):582–589. PubMed doi:10.1177/0363546512472330
15. Ardern CL, Glasgow P, Schneiders A, et al. 2016 consensus statement on return to sport from the First World Congress in Sports Physical Therapy, Bern. *Br J Sports Med*. 2016;*50*:853–864. PubMed doi:10.1136/bjsports-2016-096278
16. Board of Certification, Inc. AP Update: Fall 2017. 2017. http://www.apupdate-digital.com/apupdate/fall_2017-2?sub_id=XiDSXf7qBh3r&pg=1#pg1. Accessed December 18, 2017